REMARKS

The Examiner is thanked for the performance of a thorough search.

I. STATUS OF CLAIMS

Independent Claims 1, 8, 15, and 18 have been amended.

Dependent Claims 2, 3, 9, 10, 19, and 20 have been canceled, and the subject matter of each cancelled claim has been incorporated in the cancelled claim's corresponding independent claim.

No claims have been added.

Hence, Claims 1, 4, 7-8, 11, 14-15, 18, and 21-22 are pending in the application.

II. REJECTIONS BASED ON THE CITED ART

A. INDEPENDENT CLAIM 1

1. RABENKO, ROCHBERGER, and CZAJKOWSKI do not disclose or suggest all features of Claim 1.

Claim 1 has been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over Rabenko et al., U.S. Patent Application Publication No. 2002/0006137 ("RABENKO") in view of Rochberger et al., U.S. Patent No. 6,760,309 ("ROCHBERGER"). Further, the now canceled Claim 3 has been rejected as allegedly unpatentable under 35 U.S.C. 103(a) over RABENKO in view of ROCHBERGER and further in view of Czajkowski et al., U.S. Patent No. 6,522,647. ("CZAJKOWSKI"). The rejection of Claim 1 is respectfully traversed.

As amended, Claim 1 recites:

> converting analog phone signals into voice packets for transporting digitized voice, digitized voiceband data and digitized phone signaling, wherein said voice packets conform to a set of protocols that excludes Internet Protocol (IP), and

wherein each of said voice packets is an Ethernet packet encapsulating one ATM Adaptation Layer 2 (AAL2) cell;

setting a field in a frame header of a HomePNA frame that encapsulates each of the voice packets associated with the digitized voice and digitized voiceband indicating that the voice packets are to be transmitted at a highest level of priority of a phone line local area network that supports levels of transmission priority for transmitting data; and

...

wherein said phone line local area network follows a HomePNA network protocol.

It is respectfully submitted that none of RABENKO, ROCHBERGER and CZAJKOWSKI, discloses the features of Claim 1 of: (1) voice packets for transporting digitized voice, digitized voiceband signaling, and digitized phone signaling, **wherein each of the voice packets is an Ethernet packet encapsulating one AAL2 cell**, and (2) setting a field **in a frame header of a HomePNA frame that encapsulates each of the voice packets**, wherein each voice packet is an Ethernet packet that encapsulate a AAL2 cell and **wherein the phone line LAN follows a HomePNA protocol.**

In the paragraph spanning pages 2 and 3, the Office Action asserts that "a local area network protocol that supports levels of transmission priority for transmitting data without a separate voice dedicated network and without logically separate voice network" is described in sections [0044] to [0047] and [0152] of RABENKO. However, none of the citied paragraphs describe voice packets that are Ethernet packets encapsulated in the HomePNA frames. Further, the Applicant cannot find any passages in RABENKO that describe a voice packet that is an Ethernet packet encapsulating one AAL2 cell.

For example, the Office Action cites RABENKO's paragraphs [0032] to [0047] to show that RABENKO uses the HomePNA protocol, but none of these paragraphs describes that the HomePNA frames encapsulate Ethernet packets that in turn encapsulate AAL2 cells. On the contrary, RABENKO explicitly recites that the voice packets carried in RABENKO's system are

in a VoHN format. For example, in paragraph [0085] RABENKO recites that a voice and data processor "performs a translation function between the packets in a HomePHA LAN format (VOHN) to packets in the VoIP format." Further, in paragraph [0086] RABENKO states that "[p]ackets arriving from DOCSIS MAC are translated to a VoHN format and delivered to the HomePNA controller." Finally, in paragraph [0087] RABENKO states that "[t]he voice and data processor also performs a media and protocol translation between VoIP formats and PCM voice samples which are delivered to or received from the audio processor. This transformation may include conversion from compressed audio formats as well as signaling transformations." Thus, RABENKO does not describe the feature of Claim 1 of HomePNA frames encapsulating Ethernet packets that encapsulate AAL2 cells. Further, RABENKO does not even suggest using AAL2 cells to carry digitized voice and voiceband data. Fundamentally, RABENKO describes a completely different format that does not suggest the claimed arrangement.

In page 4, the Office Action asserts that CZAJKOWSKI in its FIG. 2 discloses "a method for generating AAL2 packets from received digitized voice, voiceband and signaling signal to transmitting a telephone line." However, neither FIG. 2 nor any other passage in CZAJKOWSKI describes carrying digital voice in AAL2 cells that are encapsulated in Ethernet packets included in HomePNA frames. As can be seen in FIG. 2 (particularly in elements 23, 22, and 21), CZAJKOWSKI shows a Voice-Over-DSL device that transmits AAL2 packets over an ATM protocol, and does not describe, teach, or suggest encapsulating AAL2 cells in Ethernet packets and/or HomePNA frames. Furthermore, the Office Action does not assert, and the Applicant cannot determine how ROCHBERGER is at all relevant to using AAL2 cells to carry digitized voice, digitized voiceband, and digitized phone signalling.

For these reasons, none of RABENKO, ROCHBEGER, or CZAJKOWSKI describes, teaches, or suggests the features of Claim 1 and the other amended independent claims in which HomePNA frames encapsulate Ethernet packets that encapsulate AAL2 cells to transport digitized voice, digitized voiceband data and digitized phone signaling.

2. There is no suggestion or motivation to combine RABENKO with ROCHBERGER.

In page 4, the Office Action asserts that the motivation to combine RABENKO with ROCHBERGER would have been "to reduce the transmission delay of the time sensitivity data." The Applicant respectfully disagrees.

The Office Action asserts that in col. 6, lines 13-20, ROCHBERGER provides motivation to use prioritization based on priority tags in Ethernet frames in order to achieve reduction in the transmission delay of time sensitive data. The Applicant respectfully disagrees that ROCHBERGER provides such motivation.

In col. 6, lines 13-29, ROCHBERGER states:

> The IEEE 802.1p standard provides a mechanism whereby priority tags can be used to indicate traffic priority. Traffic is assigned one of eight traffic classes values which is carried in a priority field in the packet header. For Ethernet frames, 802.1Q VLAN tags include a three-bit priority indication. The 802.1D LAN bridging standard provides expedited traffic capabilities to support transmission of time critical information in a LAN environment.
> Another **prior art attempt to solve the problem** involves reserving bandwidth for higher priority traffic (e.g., RSVP protocol).
> **These prior art solutions, however, have the disadvantage that they are either wasteful of bandwidth or they do not solve the congestion/jitter problem when some segments of the path are transmitting packets in sessions that have the same priority**. (Emphasis added.)

Thus, while ROCHBERGER describes that priority tags specified in the IEEE 802.1p, 802.1D and 802.1Q standards may be used to indicate traffic priority, ROCHBERGER expressly teaches

away from using such prioritization mechanisms for real-time traffic. Specifically, the problem that ROCHBERGER tries to solve involves reducing impairments to voice quality caused by transmission delays across the network fabric. (Col. 5, lines 4-6.) As commented on below, ROCHBERGER solves this problem by introducing prioritization based on a Time-To-Live (TTL) field included in the IP packets that carry the voice data, which TTL field is used to "dynamically prioritize packets on the basis of [the packets] 'time to live' in the network." (Col. 6, lines 40-41.) For this reason, contrary to the assertion in the Office Action, the above passage from ROCHBERGER teaches away from basing the prioritization of real-time data packets on priority tags included in the in Ethernet frames that carry these packets.

Generally, ROCHBERGER describes "a method of dynamically assigning priority to packets over an Internet Protocol (IP) based network." (Col. 1, lines 8-10.) In col. 6, lines 34-39, ROCHBERGER expressly states that the prioritization of packets is performed in a packet network that may comprise "an IP based network running over Ethernet, Token ring, etc." Further, in col. 6, lines 40-65, ROCHBERGER states:

> The present invention dynamically prioritizes packets on the **basis of their `time to live` in the network. In other words, packets are assigned a priority in accordance with their degree of freshness or staleness**. Packets with a relatively long time left are given lower priority then those with relatively little time left before they are of no use. In general, packets generated by real-time multimedia applications such as audio, video, etc. have a finite life span. Once that life span has passed, they are of little value. Thus, in a real-time audio application, for example, packets must arrive at their destinations in sufficient time to be played to the user in analog format. Packets representing a user's voice corresponding to a point in time earlier than the current time are useless as their window of playback has passed. These packets are of no use to the user as their time has passed and they are thus discarded.
> **The present invention is operative to add a field to the packet as it travels from entity to entity in the network. The contents of the time to live (TTL) field represents how `young` or `old` the packet is and conveys the time left before the packet is no longer any use to the application that is to receive it.** Each network entity that receives the packet with a TTL field, subtracts from it

> the time the packet spends passing through that entity. Thus, the TTL field decreases as it hops from network entity to entity. (Emphasis added.)

Thus, ROCHBERGER describes a system in which a TTL field is added to an IP packet for the purpose of measuring the time the packet has spent traveling through the network, and in which the prioritization of packet transmission is based on these measurements. Significantly, the system in ROCHBERGER does NOT use any prioritization bits included in Ethernet frames to prioritize real-time traffic.

RABENKO, on the other hand, describes a voice and data processor that "performs a translation function between packets in a HomePNA format (VOHN) to packets in the VoIP format.... Packets arriving from the HomePNA controller are translated to a VoIP format...." (Paragraph [0085]). "Packets arriving from the DOCSIS MAC are translated to a VoHN format and delivered to the HomePNA controller." (Paragraph [0086]). Further, in paragraph [0113] RABENKO states that Realtime Transport Protocol (RTP) packets (which are effectively IP packets because RTP is an IP-based protocol) are converted to "the protocol independent packet format utilized by the VoHN interface 524 and the HAPI interface 522 and vice versa." Paragraph [0113] continues to state that "[i]n the described exemplary embodiment, **the protocol independent packet payload can be identical to the RTP packet payload so that the RTP logic 536 need only convert between RTP and the headers used in the independent protocol**." (Emphasis added.) Thus, RABENKO describes that the payload in the RTP packets can be copied straight into the VoHN packets that carry voice data in the HomePNA network.

Based on the above, it is apparent that combining RABENKO with ROCHBERGER would produce a hypothetical system in which the TTL field of ROCHBERGER would be added to the VoHN packets of RABENKO to achieve prioritization of voice data. The hypothetical

system would carry the payload and headers of ROCHBERGER's VoIP packets in the payload portion of RABENKO's VoHN packets. Significantly, however, the packet prioritization in this hypothetical system would be based on the TTL fields of the VoIP packets that are included in the VoHN packets, and NOT on any prioritization bits that may be included in the frames that carry the VoHN packets. In contrast, Claim 1 recites a feature in which a field in a frame header of a HomePNA frame that encapsulates each of the voice packets is used to achieve the packet prioritization.

In sum, there is no suggestion or motivation to combine RABENKO with ROCHBERGER to achieve the features recited in Claim 1 for at least two reasons. First, contrary to the assertion in the Office Action, ROCHBERGER teaches away from using priority tags in Ethernet frames to prioritize voice or other real-time network traffic. Second, even if RABENKO and ROCHBERGER are combined, the resulting hypothetical system will NOT use a field in the frames of HomePNA packets that encapsulate Ethernet packets including AAL2 cells as recited in Claim 1. Further, there is no motivation whatsoever to use a single AAL2 cell, encapsulated in Ethernet packets in HomePNA frames.

B. INDEPENDENT CLAIMS 8, 15, AND 18

Independent Claims 8, 15, and 18 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over RABENKO in view of ROCHBERGER.

Claims 8, 15, and 18 include elements similar to the elements of Claim 1 discussed above. For this reason, it is respectfully submitted that Claims 8, 15, and 18 are patentable under 35 U.S.C. § 103(a) over RABENKO in view of ROCHBERGER for at least the reasons given above with respect to Claim 1.

C. DEPENDENT CLAIMS 4, 7, 11, 14, 21, AND 22

Claims 4, 7, 11, 14, 21, and 22 have been rejected as allegedly unpatentable under 35 U.S.C. § 103(a) over RABENKO in view of ROCHBERGER.

Each of Claims 4, 7, 11, 14, 21, and 22 depends from one of Claims 1 and 8, and thus includes each and every feature of its corresponding base claim. Thus, each of claims 4, 7, 11, 14, 21, and 22 is allowable for the reasons given above for Claims 1 and 8. In addition, each of Claims 4, 7, 11, 14, 21, and 22 introduces one or more additional features that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those features is not included at this time. Therefore, it is respectfully submitted that Claims 4, 7, 11, 14, 21, and 22 are allowable for the reasons given above with respect to Claims 1 and 8.

III. CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Reconsideration of the present application is respectfully requested in light of the amendments and remarks herein.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

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A petition for extension of time, to the extent necessary to make this reply timely filed, is hereby made. If applicable, a law firms check for the petition for extension of time fee is enclosed herewith. If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,
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Date: April 26, 2005

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